Amendments to the Claims

This listing of claims replaces all prior versions and listings of claims in the application.

Listing of Claims:

1. (previously presented)A snowmobile comprising:

a frame having a forward portion and a rear portion, said frame including a pair of skis supporting said forward portion and an endless drive track supporting said rear portion, an engine supported in said frame, a clutch system including a primary clutch and a secondary clutch having a secondary clutch axis, a drive train connected to said engine and to said endless drive track, said drive train including a planetary gear system, said planetary gear system including a first shaft and a sun gear driven by said first shaft, said first shaft being driven by said engine, planetary gears drivenly engaged with said sun gear, said planetary gears continuously rotating about said sun gear when said sun gear is driven by said first shaft, and a second shaft including a second shaft axis and a planetary gear plate engaged with said planetary gears, said second shaft being driven by said planetary gears, said second shaft driving said endless drive track, said secondary clutch axis being coaxial with said second shaft axis.

2. (original) The snowmobile of claim 1 wherein said planetary gear system is driven by said engine engaging through a clutch system.

3. (original) The snowmobile of claim 2 wherein said planetary gear system comprises four planetary gears and wherein said four planetary gears are equally spaced around said sun gear.

4. (original) The snowmobile of claim 1 wherein said planetary gear system includes a plurality of planetary gears equally spaced around said sun gear.

5. (original) The snowmobile of claim 4 wherein said planetary gear system comprises three planetary gears.

6. (previously presented) The snowmobile of claim 4 wherein said second shaft drives a differential and wherein said differential drives said endless drive track.

7. (previously presented) The snowmobile of claim 6 wherein said first shaft includes a first end adjacent said engine and a second end adjacent said sun gear and wherein said first shaft is supported on a pair of ring bearings, the first of said pair of ring bearings being disposed adjacent said first shaft end and the second of said pair of ring bearings being disposed adjacent said second end of said first shaft.

8-11. (canceled)

12. (previously presented) A snowmobile comprising:

a frame having a forward portion and a rear portion, said frame including a pair of skis supporting said forward portion and an endless drive track supporting said rear portion, an engine supported in said frame, a drive shaft extending from and being driven by said engine, a drive train connected to said drive shaft and to said endless drive track, said drive train including a reduction drive comprising a planetary gear system, said planetary drive system including a

first shaft and a sun gear coupled to and driven by said first shaft, said first shaft being coupled to the drive shaft, planetary gears drivenly engaged with said sun gear, said planetary gears continuously rotating about said sun gear when said sun gear is driven by said first shaft, and a second shaft including a ring gear engaged with said planetary gears, said ring gear having a single axial and rotated position relative to said first shaft, whereby the planetary gears and sun gear rotate relative to the ring gear at all times when the drive shaft rotates, said second shaft driving said endless drive track.

13. (previously presented) The snowmobile of claim 12 wherein said sun gear is mounted at one end of said first shaft and the opposite end of said first shaft being in driven engagement with said engine, said ring gear is disposed at one end of said second shaft, and said planetary gears are disposed between said sun gear and said ring gear, said planetary gears being driven by said sun gear.

14. (original) The snowmobile of claim 13 wherein said planetary gears are equally spaced around said sun gear.

15. (previously presented) The snowmobile of claim 14 wherein said planetary gears are supported in spaced relationship by a ring plate.

16. (previously presented) The snowmobile of claim 15 wherein said ring plate comprise a pair of ring plates, one of said ring plates being disposed on each side of said planetary gears.

17. (previously presented) The snowmobile of claim 16 wherein said ring plate further includes a plurality of planetary shafts, each of planetary shafts rotatably supporting one of said planetary gears.

18. (original) The snowmobile of claim 17 wherein said reduction drive provides a reduction in the ratio of 1:3.

19. (original) The snowmobile of claim 17 wherein said first shaft includes a stub shaft extending beyond said sun gear and wherein said stub shaft is supported in a roller bearing.

20. (original) The snowmobile of claim 19 wherein said second shaft is supported in a roller bearing disposed adjacent said ring gear.

21. (currently amended) A snowmobile including

an engine with a drive shaft;

an endless track;

an endless track shaft positioned within the endless track that drives the endless track;

a planetary gear system interconnecting said engine drive shaft and said endless track shaft, said planetary gear system including a fixed housing, a rotatable sun gear driven by said engine drive shaft, rotatable planetary gears driven by said sun gear, ~~and~~ a ring gear engaging said planetary gears and being fixed to said housing so as to be immovable relative to said sun gear and said planetary gears, a first shaft positioned between said engine drive shaft and said

sun gear, and a second shaft positioned between said planetary gears and said endless track shaft, said first and second shafts being arranged coaxially; and

a continuously variable transmission connecting said engine drive shaft to said endless track shaft wherein said engine drive shaft drives said endless track shaft through the continuously variable transmission.

22. (previously presented) The snowmobile of claim 21 wherein said planetary gears serve to provide driving power from said sun gear to said ring gear.

23. (previously presented) The snowmobile of claim 22 wherein said sun gear is integrally mounted on said engine drive shaft.

24. (original) The snowmobile of claim 23 wherein said planetary gears comprise four planetary gears.

25. (original) The snowmobile of claim 24 wherein said planetary gears comprise three planetary gears.

26. (previously presented) The snowmobile of claim 25 wherein said sun gear and engine drive shaft are rotatably supported in a bearing associated with said ring gear and drive shaft.

27. (canceled)

28. (previously presented) A snowmobile comprising:

a frame having a forward portion and a rear portion, said frame including a pair of skis supporting said forward portion and an endless drive track supporting said rear portion, an engine supported in said frame and including a drive shaft having a drive shaft axis, a drive train connected to said engine drive shaft and to said endless drive track, said drive train including a primary clutch having a primary clutch axis that is coaxial with said drive shaft axis, a secondary clutch having a secondary clutch axis, and a planetary gear system, said primary clutch and said secondary clutch being interconnected by a belt, said planetary drive system including a first shaft having a first shaft axis and a sun gear secured to and driven by said first shaft, said first shaft being driven by said engine through said primary clutch, said belt, and said secondary clutch, said first shaft axis being coaxial with said secondary clutch axis, said planetary gears being drivenly engaged with said sun gear, said planetary gears continuously rotating about said sun gear when said sun gear is driven by said first shaft, and said second shaft being engaged with said planetary gears, said second shaft being driven by said planetary gears, said second shaft driving said endless drive track.

29. (original) The snowmobile of claim 28 wherein said planetary gear system comprises four planetary gears and wherein said four planetary gears are equally spaced around said sun gear.

30. (original) The snowmobile of claim 28 wherein said planetary gear system includes a plurality of planetary gears equally spaced around said sun gear.

31. (original) The snowmobile of claim 30 wherein said planetary gear system comprises three planetary gears.

32. (canceled)

33. (previously presented) The snowmobile of claim 28 wherein said first shaft includes a first end adjacent said engine and a second end adjacent said sun gear and wherein said first shaft is supported on a pair of ring bearings, the first of said pair of ring bearings being disposed adjacent said first shaft end and the second of said pair of ring bearings being disposed adjacent said second end of said first shaft.

34. (previously presented) A snowmobile comprising:

a frame having a forward portion and a rear portion, said frame including a pair of skis supporting said forward portion and an endless drive track supporting said rear portion, an engine supported in said frame, a drive train connected to said engine and to said endless drive track, said drive train including a clutch system, said clutch system including a reduction drive comprising a planetary gear system, said planetary drive system including a fixed housing, a first shaft, and a sun gear driven by said first shaft, said first shaft being directly driven by said engine, said planetary gears drivenly engaged with said sun gear, a second shaft, and a ring gear engaged with said planetary gears, said ring gear being fixed to the housing and being immovable relative to said sun gear and said planetary gears; a primary clutch driven by said second shaft, a secondary clutch and a belt providing driving engagement between said primary clutch and said secondary clutch, said secondary clutch serving to drive said endless track.

35. (canceled)

36. (currently amended) A snowmobile comprising:

a frame having a forward portion and a rear portion, said frame including a pair of skis supporting said forward portion and an endless drive track supporting said rear portion, an engine supported in said frame, a drive train connected to said engine and to said endless drive track, said drive train including a planetary gear system, primary clutch and a secondary clutch, said primary clutch and said secondary clutch being interconnected by a belt, said planetary drive system including a first shaft and a sun gear driven by said first shaft, said first shaft being driven by said engine, said planetary gears being drivenly engaged with said sun gear, said planetary gears continuously rotating about said sun gear when said sun gear is driven by said first shaft, and a second shaft engaged with said planetary gears, said second shaft being driven by said planetary gears, wherein said second shaft drives said primary clutch and said second shaft ~~driving~~ drives said endless drive track through said primary clutch and said secondary clutch.

37. (canceled)

38. (previously presented) The snowmobile of claim 37 wherein said first shaft includes a first end adjacent said engine and a second end adjacent said sun gear and wherein said first shaft is supported on a pair of ring bearings, the first of said pair of ring bearings being disposed adjacent said first shaft end and the second of said pair of ring bearings being disposed adjacent said second end of said first shaft.

39. (previously presented) A snowmobile comprising:

(a) a frame having a forward portion and a rear portion, said frame including a ski supporting said forward portion, and said frame including an endless drive track;

(b) an engine supported in said frame;

(c) a drive train connected to said engine and to said drive track, wherein said drive train comprises:

(i) an engine drive shaft extending from and capable of being rotated by the engine, the engine drive shaft having a first longitudinal axis;

(ii) a track shaft positioned within the endless drive track and having a second longitudinal axis;

(iii) a sprocket coupled to the track shaft wherein rotation of the track shaft causes rotation of the sprocket, and wherein the sprocket drives the endless drive track;

(iv) a continuously variable transmission connecting the engine drive shaft to the track shaft wherein the engine drive shaft drives the track shaft through the continuously variable transmission; and

(v) a planetary gear system having an input shaft and a second shaft, wherein the engine drive shaft drives the input shaft and the second shaft drives the track shaft, wherein the input shaft and the second shaft are coaxial with the second longitudinal axis, wherein there exists a gear reduction from the input shaft to the second shaft.

40-41. (canceled)

42. (previously presented) The snowmobile according to claim 39, wherein the input shaft is connected to and driven by the continuously variable transmission, and wherein the second shaft is connected to and drives the track shaft.

43. (original) The snowmobile according to claim 42, wherein the second shaft and the track shaft are a single integral shaft.

44. (original) The snowmobile according to claim 39, wherein the gear reduction ratio caused by the planetary gear system is between 1:1 and 6:1.

45. (previously presented) A snowmobile comprising:

(a) a frame having a forward portion and a rear portion, said frame including a ski supporting said forward portion, and said frame including an endless drive track;

(b) an engine supported in said frame; and

(c) a drive train connected to said engine and to said endless drive track, wherein said drive train comprises:

(i) a planetary gear system including a input shaft and a second shaft coaxial with the input shaft, wherein the input shaft is driven by the engine and the second shaft is driven by the input shaft with a gear reduction from the input shaft to the second shaft; and

(ii) a sprocket that rotates about an axis of a endless track drive shaft positioned within the endless track, wherein the sprocket is coaxially connected to and driven by the second shaft, and wherein the sprocket drives the endless drive track.

46. (original) The snowmobile according to claim 45, wherein the planetary gear system further comprises:

(a) a sun gear connected to the input shaft, wherein the sun gear defines an opening;

(b) a ring gear wherein the ring gear is rotationally stationary; and

(c) a planetary cage assembly engaged with the sun gear and the ring gear, wherein the planetary cage assembly comprises:

(i) a weight bearing protrusion connected to the second shaft, wherein the weight bearing protrusion is received by the opening in the sun gear, wherein the weight bearing protrusion supports the sun gear;

(ii) a cage connected to the second shaft wherein rotation of the cage results in rotation of the second shaft; and

(iii) a plurality of planetary gears supported by the cage, wherein the planetary gears gearingly mesh with the sun gear and the ring gear, wherein rotation of the sun gear causes rotation of the planetary gears, and wherein rotation of the planetary gears within the ring gear cause the planetary cage assembly including the second shaft to rotate.

47. (original) The snowmobile according to claim 45, wherein the drive train further comprises a continuously variable transmission, wherein the continuously variable transmission is driven by the engine and wherein the continuously variable transmission drives the planetary gear system.

48. (original) The snowmobile according to claim 47, wherein the continuously variable transmission comprises a primary clutch, a belt, and a secondary clutch, wherein the primary

clutch is driven by the engine, wherein the secondary clutch is connected to the primary clutch by the belt, wherein the secondary clutch is driven by the primary clutch, and wherein the secondary clutch is coupled to and drives the planetary gear system.

49. (previously presented) A snowmobile comprising:

(a) a frame having a forward portion and a rear portion, said frame including a pair of skis supporting said forward portion, and said frame including an endless drive track;

(b) an engine supported in said frame; and

(c) a drive train connected to said engine and to said endless drive track, said drive train consisting essentially of:

(i) an engine drive shaft extending from the engine and capable of being rotated by the engine, the engine drive shaft having a first longitudinal axis;

(ii) a track shaft having a second longitudinal axis;

(iii) a sprocket coupled to the track shaft wherein rotation of the track shaft causes rotation of the sprocket, and wherein the sprocket drives the endless drive track;

(iv) a continuously variable transmission including a primary clutch that rotates about a primary clutch axis and a secondary clutch that rotates about a secondary clutch axis, wherein the engine drive shaft drives the primary clutch, the primary clutch drives the secondary clutch, and the secondary clutch drives the track shaft, the first longitudinal axis being coaxial with the primary clutch axis and the second longitudinal axis being coaxial with the secondary clutch axis; and

(v) a planetary gear system having an input shaft and a second shaft, wherein the engine drive shaft drives the input shaft and the second shaft drives the track shaft, wherein

the input shaft and the second shaft are coaxial with one of the axes selected from the group consisting of the first longitudinal axis and the second longitudinal axis, wherein there exists a gear reduction from the input shaft to the second shaft.

50-55. (canceled)